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E Solis
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SUBSTITUTE SPECIFICATION

METHOD FOR MONITORING THE FUNCTION OF AN NOx SENSOR ARRANGED IN AN EXHAUST GAS CHANNEL OF AN INTERNAL COMBUSTION ENGINE

Background of Invention

[0001] The invention relates to a process for monitoring the function of an NOx sensor arranged in an exhaust duct of an internal combustion engine. To reduce the emission of pollutants from an internal combustion engine, a known practice is to arrange suitable catalysts in the exhaust gas duct of the engine. The catalyst collects pollutants, such as CO, HC or H_2 that can act as reducing agents and be oxidized by atmospheric oxygen. These reducing agents may also react with the NOx, produced during the combustion process in the engine, to form nitrogen.

[0002] If the engine is operating in a lean mode the proportion of oxygen in the air-fuel mixture is increased, which is more favorable to combustion, and as a consequence the proportion of the reducing agents in the exhaust will decrease. In this case, an adequate reaction of NOx on the catalyst will no longer be ensured. As a remedy, an NOx reservoir may be arranged in the exhaust duct and combined with the catalysts to make an NOx storage catalyst. The NOx storage catalyst will absorb NOx if the NOx desorption temperature is not exceeded or until the NOx storage capacity is reached. Prior to reaching it's storage capacity, the system will have to change to a regeneration mode to regenerate the NOx storage catalyst by a period of rich operation, and prevent NOx emission.

[0003] To determine whether regeneration is necessary the NOx concentration downstream from the NOx storage catalyst may be detected with an NOx sensor. A disadvantage of this, however, is that if the NOx sensor misfunctions, high NOx emissions may occur, or NOx may be unnecessarily consumed during a premature regeneration. The object of the present invention is